**Africa RISING**

**2016/ 2017 workplan**

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**MALAWI**

1. Expansion to Mangochi and Machinga districts workplan

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| **Objective 1**: Expansion of action research activities to Mangochi and Machinga districts | | |
| Research question/hypothesis: Participatory engagement of farming communities using grain legume-based sustainable intensification technologies involving soyabean, groundnut and pigeonpea, enables more optimal production of the sequenced staple maize, with a net effect of increased resilience to climate shocks. | | |
| **Activities** | **Milestones/outputs** | **Timeline** | |
| 1.1    Ground-verification field visits to identify action sites and corresponding counterfactual sites |       Maps of action and counterfactual sites produced and reported | by feb 2017 | |
| 1.2    Engage partners (Government extension, NGOs, other USAID funded initiatives) at appropriate levels in both districts |       District level partners meeting held in both Mangochi and Machinga districts | by March 2017 | |
| 1.3    Train extension staff on participatory action research and sustainable intensification concepts |       Joint training workshop for Machinga and Mangochi extension staff partners held | by March 2017 | |
| 1.4    Procure inputs (seed, inoculants and fertilizers) for at least 5 mother trials/ on-farm experiments per section and at least 100 baby trials |       Quality seed and inoculants procured and distributed to about 1000 baby trial farmers in action sites | Completed for 2016; by Nov 2017 | |
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| 1.5    Set up on-farm mother trials and demonstration plots in action sites (adapted to the specific agroecological conditions of Mangochi and Machinga as informed by Africa RISING work in Ntcheu and Dedza) |       At least 15 mother trials set up in action sites during Year 1 & year 2 | by December 2017 | |
| 1.6    Test ecologically sound integrated nutrient and water management practices for enhanced productivity under semi-arid conditions |       Field protocols in water and nutrient management at farm and landscape scales | by September 2017 | |
|       Field trials established on efficient organic -inorganic nutrient combinations developed |
|       Doubled-up legume technology + tied ridges |
| 1.7    Introduce and evaluate improved local chicken and goat management practices |       Survey on current livestock management practices conducted | by September 2017 | |
|       Goat feeding trial structures construction initiated in both districts |
| 1.8    Study soil water-nutrient relations for selected SI technologies using access tubes among other techniques |       Install in Malawi weather stations and soil water probes installed at on-farm, research sites | by September 2017 | |
| 1.9    Provide information on climate change adaptation, support cross learning, innovative extension aids and support decision tool development |       On-farm, site visits organized | by December 2017 | |
|       Training sessions conducted with CIAT |
|       Africa RISING research outputs appropriately packaged and disseminated to development partners |
| **Objective 2**. Seed systems action research in support of diversification and ripple effects (increase capacity of local seed producers, and expand opportunities for farm enterprise diversification, with a goal of increasing legume seed quality) | | |
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| Research question/hypothesis: When foundation/certified seed is made available to a critical mass of lead farmers in conjunction with appropriate seed production training, a multiplier effect is generated that increases community-wide seed availability over a three-year cycle. | | |
| 2.1    Develop Farmer Field School (FFS) training materials on seed systems |       FFS modules on seed systems and agronomy training developed published and in use | by September 2017 | |
| 2.2    Procure foundation or certified seed for groundnut, and certified soyabean seed |       At least 3000 kg seed produced from ICRISAT and other reputable seed houses | by October 2016; year two Sept 2017 | |
| 2.3    Distribute seed to selected farmers involved in seed multiplication |       Seed packaged in 10-15 kg packs and distributed to at least 300 resource-endowed households in Mangochi and Machinga | by November 2017 | |
| 2.4    Procure and distribute appropriate soyabean inoculants |       Soyabean inoculants distributed to all farmers receiving specific soyabean varieties | by November 2017 | |
| 2.5    Conduct training of trainers to support 300 farmers each of whom will over the next year support 10 farmers each |       Training and support for extension to work with lead farmers and support ~300 baby farmers in seed systems | by December 2017 | |
| 2.6    Identifying, coordinating with, and complementing the relevant ongoing USAID/Malawi seed systems projects in the region (including INVC bridging, PERFORM, MISST, etc.) |       At least one cross-learning tour with related seed systems projects conducted, involving lead farmers from Mangochi and Machinga | by February 2017 | |
| 2.7    Organize and hold field days/field training during the production cycle |       Field-based training conducted in each action site | by April 2017 | |
| 2.8    Conduct yield cut estimates on legume seed productivity for 50% randomly selected farmers participating in seed production |       Grain legume productivity estimation protocols developed and yield estimations field surveys implemented | by May 2017 | |
| 2.9    Conduct post harvest training on saving seed for maintaining viability until next cropping season (including for other related USAID supported projects) |       Post-harvest seed preservation trainings conducted for lead farmers, extension staff and other partners | by September 2017 | |
| **Objective 3**. Understanding drivers of sustainable production, conducting agronomic research and facilitating catalytic education by Malawi extension and Africa RISING Phase I farmers. | | |
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| Research question/hypothesis: Technologies will be identified that support sustainable intensification, through systematic farm monitoring linked to on-farm experimentation to test interactions of environment with crop diversity, soil, water and nutrient management, crop performance and profitability. We hypothesize that market access combined with improved forms of extension education will support adoption and farmer innovations, particularly in higher potential sites with soil organic matter above threshold levels. | | |
| 3.1    Conduct baseline survey in new sites, profile farmers and establish current levels of utilization of SI agricultural technologies |       Survey instruments available and pre-testing completed | by November 2016 | |
|       Survey initiated |
| 3.2    Develop/Adapt improved extension materials based on Africa RISING Phase I insights |       Materials developed for extension trainings (see 2.2) and support participatory extension farmer engagements to deploy educational materials | by January 2017 | |
| 3.3    Establish inter-district level linkages between Phase I Africa RISING training extension and ‘new’ partners |       Plan for inter-district collaboration for action-site level extension staff established (exchange field visits, joint-training sessions, etc) conducted | by February 2017 | |
| 3.4    Conduct soil survey to understand current soil fertility status and distribution (soil C, soil pH, available P, etc) in action sites and analyze based on Afsis methodology |       Survey methodology developed | by March 2017 | |
|       Soil sampling initiated |
| 3.5    Conduct feedback meetings with stakeholders (farmers, extension, agro-dealers) |       Feedback meetings conducted at end of planting season | by May 2017 | |
| 3.6    Typology farms and profile production practices and level of utilization of SI technologies across sites |       Farm typology frameworks integrated into other survey instruments and used to fine tune extension materials (see 3.2) | by September 2017 | |
| 3.7    Track farm sizes, cropping patterns and diversity through targeted farm surveys |       Develop landscape approach to consider proportion of land that can be allocated to legumes on farms – and how this relates to farm size investigated | by December 2017 | |
| **Objective 4.** Mapping potential and impact of legume, shrub, and tree systems across FTF and FFP Zones of Influence to increase terrestrial carbon storage, diversify farm enterprises, increase smallholder resilience to climate change and market shocks, and enhance livelihoods. | | |
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| Research question/hypothesis: Time-series and spatial variability mapping will improve our understanding of the distribution of plant growth types and cropping systems, and determine relationships to soil organic carbon and resilience of agricultural performance. | | |
| 4.1      Assess current and historic perennial vegetation productivity in Machinga and Mangochi through use of remotely-sensed imagery (e.g., MODIS) |       Time-series maps of current and historic vegetation productivity and spatial variability | by February 2017 | |
|       Field survey maps for informed selection of action sites |
| 4.2      Produce relative agricultural productivity maps of Machinga and Mangochi, with emphasis on relevant FTF, FFP, and GCC zones of influence, using a remotely-sensed satellite imagery model |       Preliminary maps identifying spatial variability and productivity of individual sites as they relate to regional (i.e., Machinga and Mangochi) trends | by April 2017 | |
| 4.3      Couple crop simulation modeling with remote sensing models (4.0 and 4.1) to explore the extent to which doubled up legumes, long-duration legumes and farmer regeneration of trees can be deployed, and impacts on ecosystem services |       Preliminary modeled APSIM datasets, ICRISAT to conduct based on mother baby trial data in collaboration with rest of team | by October 2017 | |
|       Preliminary maps highlighting areas where development opportunities (i.e., doubled up legumes, long-duration legumes, and farmer regeneration of trees) would prove most effective and most needed |
| 4.4      Conduct training for partners on climate smart agriculture, carbon sequestration (in perennial trees and soil aggregates) and potential impacts of alternatives to charcoal production |       Training workshop held for partners from research organizations, extension, and other USAID funded climate change related projects | by November 2017 | |
| 4.5      Explore soil C sequestration through the Winrock C calculator and related models |       Identify tools for estimation of regional soil C sequestration | December 2017 (and beyond) | |
| 4.6      Assess resilience of cropping system practices using the developed remote sensing and crop simulation products (4.2), and promote best practices through education with our partners |       Report outlining potential and resilience of improved cropping systems, based on remotely-sensed imagery, crop simulation modeling, and field surveys | December 2017 (and beyond) | |
|       Promote best practices through extension |

1. INVC Bridging activity

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| **Objective 1**: Expansion of action research activities to Mangochi and Machinga districts | | |
| Research question/hypotheses: Does targeted training of extension/development partners result in generation of quality data useful for inclusion in scientific investigations to enhance positive feedback in SI pathways and publications | | |
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| 1.1    Provide technical/agronomic support to the INVC-bridging project through targeted training of project officers and other groundnut and soyabean value chain actors | ·      On-farm, site visits organized | by July 2017 |
| ·      Training sessions conducted |
| ·      Africa RISING research outputs appropriately packaged and disseminated to development partners |
| 1.2    Train INVC staff for improved ability to track productivity and research | Train INVC bridging project partners in appropriate data collection | by August 2017 |
| ·      Training sessions conducted |
| support INVC monitoring to establish productivity and yield gaps |
| 1.3   Review technical plans, reports and train on technology implementation & education | Technical backstopping to the INVC agriculture productivity specialist (rhizobilogy, doubled-up technology, soil-water management, etc) | by December 2017 (and beyond) |
| ·      Training sessions conducted |
| Review reports before they are circulated |

**TANZANIA**

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| **Africa RISING East and Southern Africa Project** | | | | | | | | | | | | |
| **2016/2017 work plan** | | | | | | | | | | | | |
| **{Kongwa Kiteto}** | | | | | | | | | | | | |
| **Program Purpose:** | | | | | | | | | | | | |
| *To provide pathways out of hunger and poverty for smallholder families through sustainably intensified farming systems that sufficiently improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.* | | | | | | | | | | | | |
|  | | ***Start date*** | ***End date*** | ***Research Question*** | ***Milestone*** | ***Means of Verification*** | ***SI indicators*** | ***FtF indicators*** | ***FtF Targets*** | ***Custom Indicators*** | ***Custom Targets*** | ***Action Sites*** |
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| **Outcome 1:** Productivity of crop-livestock systems in selected semi-arid and sub-humid agro-ecologies of ESA enhanced | | | | | | | | | | | | |
| **Output 1:** Proven integrated crop-livestock technologies for improved productivity diversified diets and income in target agro-ecologies delivered. | | | | | | | | | | | | |
| Activity 1: Assess and iteratively improve crop-livestock combinations from phase 1 | | | | | | | | | | | | |
|  | Sub - activity 1.1: Deploy new varieties for diverse crop-livestock systems. | 1-Dec-16 | 30-Sep-17 | A2 | 10 varieties deployed (two each of groundnut, pigeonpea, sorghum, pearl millet and maize) | Progress reports and release | Productivity (crop production) | 4.5.2 (2) | 10 | 2 success stories, 2 technology protocols, one each for legumes and dryland cereals for evaluation developed) and 1 draft paper |  | Kongwo and Kiteto |
|  | Sub-activity 1.2: Deploy integrated community breeding and management system for poultry (nutrient recycling and use of crop residues). | 1-Dec-16 | 30-Sep-17 | A1, A2 | At least two improved chicken breeds generated at 6 sites and 1 community action group mobilized in each district for poultry production. | Progress reports and draft publication | Productivity (Animal yield) | 4.5.2 (5) | 2 | 2 community action research groups mobilized for communiyt based poultry improvement and 1 draft paper |  | Kongwo and Kiteto |
|  | Sub-activity 1.3: Deploy integrated fodder and livestock production | 1-Dec-16 | 30-Sep-17 | A1, A2 | At least 4 technologies that integrate crop and fodder management made available (Intercropping, shelter belt, fodder banks, tree on cotours, boundary planting); produced and distributed tree planting log book to at least 150 farmers | Progress report, activity reports of the partners | Productivity (crop, fodder, wood and variability over time) | 4.5.2 (2) | 4 | Draft paper on legume-crops integrations (year 2) | 1 | Kongwo and Kiteto |
|  | Sub-activity 1.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total-Activity 1** |  |  |  |  |  |  |  |  |  |  |  |
| Activity 2: Evaluate and implement pathways that are effective at improving access to seeds and clonal material of modern varieties of legumes, cereals , vegetable and forages | | | | | | | | | | | | |
|  | Sub-activity 2.1: Pilot informal seed systems for legumes, cereals and tree seedlings. | 1-Dec-16 | 30-Sep-17 | A2 | At least one seed bank and satellite nursery in each village (7 villages) established. | Progress reports, activity reports of the partners | Crop productivity (crop production), Economic (input use intensity) | 4.5.2 (12), 4.5.2 (27), | 4.5.2 (12)= 1, 4.5.2 (27) = 7 | 7 community seed banks established in each of the target villages of Konga and Kiteto. Draft sections for paper on community seed systems |  | Kongwo and Kiteto |
|  | Sub-activity 2.2: Explore early seed generation production systems. | 1-Dec-16 | 30-Sep-17 | A2 | 5 private sectors agencies engaged in early seed generation production systems in partnership with ARI-Hombolo | Progress reports, activity reports of the partners | Crop productivity (crop production), Economic (input use intensity) | 4.5.2 (12), 4.5.2 (27), | 4.5.2 (12)= 1, 4.5.2 (27) = 7 | At least one private agency engaged in seed production one per district. 7 community seed banks established in each of the target villages of Konga and Kiteto. |  | Kongwo and Kiteto |
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|  | **Sub Total-Activity 2** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 2:** Climate smart crop and crop-livestock technologies in targeted landscapes and semi-arid areas delivered | | | | | | | | | | | | |
| Activity 1: Farmer participatory experimentation with crop and soil management and integrated crop-livestock technologies in on-farm situations. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Investigate long term effects of insitu soil water harvesting technologies on soil water storage, runoff, soil loss and crop performance. | 1-Dec-16 | Sep-17 | A1, A2 | The following data sets generated on 1) Data on the benefits of long term effect of insitu water harvesting technologies . 2) Data on the benefits of soil erosion technologies. | Progress reports, activity reports of the partners | Crop productivity (crop production, animal yield, fodder), Economic (profitablility), Environment (Nutrients), Human (Nutrition), Social (Labour) | 4.5.2 (2), 4.5.2 (5) | 4.5.2 (2)= 10 ha, 4.5.2 (5) = 10 | Draft paper for publication | 1 | Kongwo and Kiteto |
|  | Sub-activity 1.2: Enhance resiliance adaptation through cereal/legume cropping systems | 1-Dec-16 | Sep-17 | A1, B4, D9 | At least 600 demos and 2 experiments of fertilizer-legume combinations/Climate smart agriculture established. | Progress reports, activity reports of the partners | Crop productivity (crop production), Economic (input use efficiency), Environmnet (Carbon and nutrient) | 4.5.2 (2), 4.5.2 (5) | 4.5.2 (2)= 60 ha, 4.5.2 (5) = 10 | Fodder tree production log book; research publication; Flyers on climate smart agriculture distributed | 150 copies of flyers | Kongwo and Kiteto |
|  | Sub-activity 1.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| Activity 2: Use farm trial data to apply crop simulation models and assess performance over space and time, including assessment of climate-smart technologies to establish the potential for adaptation and mitigation. | | | | | | | | | | | | |
|  | Sub-activity 2.1: Simulating impact of water conservation techniques for adpatation to weather variability | 1-Dec-16 | Sep-17 | A1, B4 | An initial report on input data required for the models generated. | Progress reports, activity reports of the partners, research publication | Crop productivity (crop production, variability of production) Economic (input use efficiency), Environment (Soil attributes) | 4.5.2 (2) | 1 ha | Draft paper for publication | 1 | Kongwo and Kiteto |
|  | Sub-activity 2.2 Assess environments for target population of legumes and cereals | 1-Dec-16 | Sep-17 | B4, D10 | A report on appropriate environments for matching varieties to agro-ecologies made available. | Progress reports, activity reports of the partners | Crop productivity (crop production), Economic (input use efficiency), Environment (Soil attributes) | 4.5.2 (2) | 3 ha | Draft paper for publication |  | Kongwo and Kiteto |
|  | Sub-activity 2.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 3:** The awareness and use of locally available organic nutrient resources (manure, crop residues, etc.,) and fertilizer at community level enhanced. | | | | | | | | | | | | |
| Activity 1: Establish adaptive field experiments with mineral and animal-derived organic manure. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Evaluate crop yields and profitability of fertilizer mocrodose- legume combinations with farmers in high and low potential sites | 1-Dec-16 | Sep-17 | C7, E12 | At least 600 demos on crops yields and economic benefits of using fertilizer microdose-legume combinations by farmers | Research report | Crop productivity (crop yield, fodder, & wood), Economic (profitablility), Social (Labour) | 4.5.2 (2) | 4.5.2 (2)= 60 ha | Draft manuscript on evaluation of fertilizer microdosing by farmers (Year 2) | 1 |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| Activity 2: Demonstrate the use and impact of crop residues, forages, and other organic resources as animal feed and nutrient resources. | | | | | | | | | | | | |
|  | Sub-activity 2.1: Demonstrate effective use of local material for feed. | 1-Dec-16 | 30-Sep-17 | A2, B4 | 4 training sessions on feeds ratios and one feeding trial on locally made poultry feeds conducted. 200 flyers on Fodder/feeds utilization farmers produced and distributed to farmers engaged in Konga and Kiteto | Research reports; training reports | Productivity (crop, fodder, wood and variability over time) | 4.5.2 (7), 4.5.2 (5) | 4.5.2 (7) = 120 4.5.2 (5) = 20 | Poultry feed rations protocols; training manuals for poultry production generated; extension flyers developed and distributed | 200 copies of each flyer | Kongwo and Kiteto |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| Activity 3: Use crop-livestock models for trade-off analysis. | | | | | | | | | | | | |
|  | Sub-activity 3.1: Trade off analysis on the fate of technologies in different farm types. | 1-Jan-17 | 30-Sep-17 | A1, A2 | One study on trade-off analysis of selected SI technologies conducted and drafted into a paper. | Research reports | Crop productivity (crop production, animal yield, fodder), Economic (profitablility), Environment (Nutrients), Human (Nutrition), Social (Labour) | 4.5.2 (7), 4.5.2 (5) | 4.5.2 (7) = 4, 4.5.2 (5) = 400 | Draft paper on trade-off analysis | 1 | Kongwa & Kiteto |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 4:** The impact of crop residues, forages, and other locally available organic resources on productivity quantified and disseminated. | | | | | | | | | | | | |
| Activity 1: Conduct extrapolation domain analysis based on GIS, agro-ecology, and crop model-generated information to establish the potential of technologies for geographical reach. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Targeting technologies to typologies for scaling | 1-Jan-17 | 30-Sep-17 | B4 | A study to refine typologies for Kongwa and Kiteto cropping and farming systems conducted | Research reports | Crop productivity (crop production, animal yield, fodder), Economic (profitablility), Environment (Nutrients), Human (Nutrition), Social (Labour) | 4.5.2 (7), 4.5.2 (5) | 4.5.2 (7) = 4, 4.5.2 (5) = 400 | Draft paper on targeting technologies | 1 | Kongwa & Kiteto |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| Activity 2: Disseminate best-fit integrated crop-livestock technologies to reach and have effect on small-scale farmers in a landscape context. | | | | | | | | | | | | |
|  | Sub-activity 2.1: Promote Integrated soil fertility management in legume/ cereal intercropping systems | 1-Dec-16 | 30-Sep-17 | A2, C7 | At least 30 demos conducted on farm project managed and partner (farmer group and or district extension) managed demonstrations | Progress reports, activity reports of the partners | Productivity (crop, fodder, wood and variability over time) | 4.5.2 (7), 4.5.2 (5) | 4.5.2 (7) = 200, 4.5.2 (5) = 50 | Report on alternative extension systems for knowledge transfer |  | Kongwo and Kiteto |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 5:** Labor-saving and gender-sensitive technologies in target areas to reduce drudgery while increasing labor efficiency in the production cycle delivered. | | | | | | | | | | | | |
| Activity 1: Support local partners through training on appropriate drudgery-reducing technology delivery. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Training extension staff on labour saving released technologies for shelling, microdosing and tillage. | 1-Dec-16 | 30-Sep-17 | E11, E12 | At least 7 training sessions on use of labour saving equipment conducted one for each village at selected farmer learning centers. | Training reports | Human (Capacity to experiment), Social (social capital) | 4.5.2 (7), 4.5.2 (5) | 4.5.2 (7)= 300, 4.5.2 (5) = 50 | Report on effectiveness of labour saving technologies and application protocols; training manuals | One protocol for each technology | Kongwo and Kiteto |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| Activity 2: Co-adapt existing mechanization options with target communities. | | | | | | | | | | | | |
|  | Sub-activity 2.1: Promoting ox/tractor ripper, Ox-ridger implements | 1-Dec-16 | 30-Sep-17 | B5, D9, E11 | 50 farmer and partner managed demonstrations established at 20 sites in Mlali in Kongwa and Njoro in Kiteto. | Progress reports, activity reports of the partners | Human (Capacity to experiment),Economic (Input use intensity), Social (social capital) | (4.5.2 (42) 4.5.2 (28)) | 50 groups | 3 technology protocols for testing and deployment of light farm implements | One protocol for each technology | Kongwo and Kiteto |
|  | Sub-activity 2.2: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Outcome 2:** *Community adoption of technologies that will lessen hunger and poverty under conditions of climate change* | | | | | | | | | | | | |
| **Output 1:** Opportunities for enhancing water resource management to reduce community vulnerability in various contexts analyzed. | | | | | | | | | | | | |
| Activity 1: Characterize current practices in ESA through identifying formal and informal arrangements for access to and use of water and land resources. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Pilot landscape rain water harvesting systems for semi arid agroecologies | 1-Dec-16 | 30-Sep-17 | C6, C7, D9 | One pilot landscape water harvesting initiative conducted per district in partnership with each district council. | Research reports, activity reports of the partners | Human (Capacity to experiment),Economic (Input use intensity), Social (social capital), environment | 4.5.2 (39), 4.5.2 (7) | 4.5.2 (39)= 1, 4.5.2 (7) = 600 | Report on scaling up of water management at land scape level and draft inputs into paper |  | Kongwo and Kiteto |
|  | Sub-activity 1.2: Scaling up of insitu rainwater harvesting technologies for enhancing crop productivity in drought prone areas of Kiteto and Kongwa. | O1 Nov 2016 | 30-Sep-17 | C6, C7, D9 | Scale-up good agronomic practcices generated by Main Africa RISING project to mission- Nafaka sites. | Progress reports, activity reports of the partners | Human (Capacity to experiment),Economic (Input use intensity), Social (social capital) | 4.5.2 (7), 4.5.2 (39), 4.5.2 (27), | 4.5.2 (7)= 18,750, 4.5.2 (27) = 3750 4.5.2 (39)= 3 | Report on scaling up of Good agronomic practices dissemination based on farmer based knowledge transfer systems and draft inputs into paper |  | Kongwo and Kiteto |
|  | Sub-activity 1.3: Village agriculture extension workers trained on insitu rainwater harvesting technologies, IPM and Intergated crop management and good agronomic practices for enhancing crop productivity in drought prone areas of Kiteto and Kongwa. | O1 Nov 2016 | 30-Sep-17 | C6, C7, D9 | District agriculture extension workers from Kiteto and Kongwa trained for better targeting of innovations. | Progress reports, activity reports of the partners | Human (Capacity to experiment),Economic (Input use intensity), Social (social capital) | 4.5.2 (7) | 25 persons | Report |  | Kongwo and Kiteto |
|  | Sub-activity 1.4: Promote and scale fertilizer microdosing and improved maize variety technologies in Kilosa. | 1-Dec-16 | 30-Sep-17 | C6, C7, D9 | Establish field demonstration to promote new technologies and knowledge dissemination in mission- NAFAKA sites. | Progress reports and activity reports of the partners | Productivity (crop production) and Economic (Input use efficiency, profitability) | 4.5.2 (7), 4.5.2 (27), 4.5.2 (39) | 4.5.2 (7)= 5000, 4.5.2 (27) = 10 4.5.2 (39)= 3 | Technology protocol; success stories | 1 | Kilosa |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| Activity 2: Identify opportunities for using supplementary irrigation in different farming systems of the ESA target country agro-ecologies. | | | | | | | | | | | | |
|  | Sub-activity 2.1: |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 2.2: |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 2.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 2:** Demonstration and learning sites on innovative options for land and water management in selected farming systems established. | | | | | | | | | | | | |
| Activity 1: Set up demonstration and learning sites in target ESA communities. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Scaling up of soil and water management at landscape level | 1-Dec-16 | 30-Sep-17 | C6, C7, D9 | Farmer led demonstrations established on water harvesting technologies in Kongwa and Kiteto to increase awareness and promote the technologies. | Progress reports, activity reports of the partners | Productivity (crop production), Human (Capacity to experiment), Economic (Input use intensity), Social (social capital) | 4.5.2 (2), 4.5.2 (5), 4.5.2 (7) | 4.5.2 (2)= 100 ha 4.5.2 (5) = 20 4.5.2 (7)= 3 | Success stories |  | Kongwo and Kiteto |
|  | Sub-activity 1.2: |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 1.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 3:** Improved and inclusive approaches and methods for delivery at scale of innovative water resources management available for stakeholders. | | | | | | | | | | | | |
| Activity 1: Conduct and evaluate participatory and inclusive testing of approaches within the demonstration sites for improving access to and use of water resources for supplementary irrigation to address rainfall variability. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Conduct landscape rain water harvesting trials. | 1-Dec-16 | 30-Sep-17 | C6, C7, D9 | At least one landscape level water harvesting study conducted per district (Kongwa and Kiteto). | Progress reports, activity reports of the partners | Productivity (crop production), Human (Capacity to experiment), Economic (Input use intensity), Social (social capital) | 4.5.2 (39), 4.5.2 (7) | 4.5.2 (39)= 1, 4.5.2 (7) = 600 | Report on scaling up of water management at land scape level and draft inputs into paper |  | Kongwo and Kiteto |
|  | Sub-activity 1.2: |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 1.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Outcome 3:** *Options for equitable food and feed safety, nutritional quality and income security of target smallholder families improved* | | | | | | | | | | | | |
| **Output 1:** Capacity of farm families and local partners to adopt diverse crop and fodder species improved. | | | | | | | | | | | | |
| Activity 1: Conduct packaging and delivery of crop and fodder varieties and associated management practices through community and development partnerships with iterative reviewing and refining. | | | | | | | | | | | | |
|  | Sub - activity 1.1: |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 1.2: |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 1.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 2:** Postharvest losses due to adoption of improved technologies reduced. | | | | | | | | | | | | |
| Activity 1: Conduct packaging and delivery of postharvest technologies through community and development partnerships with iterative review, refining, and follow-up. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Determine link between post harvest technologies, food safety, nutrition and health | 1-Dec-16 | Sep-17 | A2, B7, E12 | A study on food safety and health indicators for children from 5 villages of Kongwa and Kiteto. | Progress reports, activity reports of the partners | Human (Food utilization, nutirtion, Capacity to experiment), Social (gender equity) | 4.5.2 (11) | 100 mothers and 100 children | Progress report and draft paper for publication | 1 | Kongwo and Kiteto |
|  | Sub-activity 1.2: Pilot new storage technologies to reduce the pest attacks during storage. | 1-Dec-16 | Sep-17 | A2, B7, E12 | One study on efficiency of new storage technologies conducted in 5 villages involing 20 farmers per village) . | Progress reports, activity reports of the partners | Human (Food utilization, nutirtion, Capacity to experiment), Social (gender equity) | 4.5.2 (11), | 4.5.2 (11) = 5. 4.5.2 (42), 4.5.2 (28)= 10 300 farmers | Progress report and draft paper for publication | 1 | Kongwo and Kiteto |
|  | Sub-activity 1.3: Promoting post harvest storage and processing | 1-Dec-16 | 30-Sep-17 | B5, D9, E11 | Post harvest technologies piloted for storage and management of nutient dense options to inform scaling efforts in Kongwa and Kiteto. | Progress reports, activity reports of the partners | Human (Capacity to experiment),Economic (Input use intensity), Social (social capital) | 4.5.2 (42), 4.5.2 (28) | 4.5.2 (42), 4.5.2 (28)= 40 House holds | Progress report and draft paper for publication |  | Kongwo and Kiteto |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 3:** Nutritional quality due to increased accessibility and use of nutrient-dense crops by farmers improved. | | | | | | | | | | | | |
| Activity 1: Promote and deploy nutrient-rich crop varieties and livestock feed resources in target communities. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Promote post harvest technologies of nutrient dense legume and cereals and safe diversified nutritious food | 1-Dec-16 | Sep-17 | A2, B7, E12 | At least 20 households in each village (4 villages) two per district, utilizing PHT for management of legumes and other, nutient dense options as the pilot learning to inform scaling efforts . | Progress reports, activity reports of the partners | Human (Food utilization, nutirtion, Capacity to experiment), Social (gender equity) | 4.5.2 (11) | 4.5.2 (11)= 100 mothers and children | Progress report and draft paper for publication |  | Kongwo and Kiteto |
|  | Sub-activity 1.2: |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 1.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Outcome 4:** *Functionality of markets, institutions, and partnerships associated with SI technologies through providing mechanisms that improve household linkages to markets improved* | | | | | | | | | | | | |
| **Output 1:** Business models for improved markets’ functionality developed. | | | | | | | | | | | | |
| Activity 1: Conduct comprehensive value-chain analysis (VCA) with specific focus on SI technologies. | | | | | | | | | | | | |
|  | Sub - activity 1.1: Conduct value chain analysis for nutrient dense crop commodities | 1-Dec-16 | 30-Sep-17 | C7, D9, E11 | 2 VCA studies for one cereal and one legume commodity chain conducted. | Research reports | Productivity (crop production), Economic (Input use efficiency, market participation), Social (social capital) | 4.5.2 (2) | 4.5.2 (2) = 60 ha | Draft paper for publication | 1 | Kongwo and Kiteto |
|  | Sub-activity 1.2: |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 1.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| Activity 2: Conduct a value chain stakeholder analysis (stakeholder mapping). | | | | | | | | | | | | |
|  | Sub-activity 2.1: Conduct value chain analysis of commodities, crops and live stock | 1-Dec-16 | 30-Sep-17 | C7, D9, E11 | A value chain analysis for local poultry and one small ruminant conducted. | Research reports | Productivity (crop production), Economic (Input use efficiency, market participation), Social (social capital) | 4.5.2 (42) | 4.5.2 (42) = 2 | Draft paper for publication | 1 | Kongwo and Kiteto |
|  | Sub-activity 2.2: Conduct value chain analysis of seed/seedling systems | 1-Dec-16 | 30-Sep-17 | C7, D9, E11 | A value chain analysis for seed/seedling systems for legumes, seedlings and cereals conducted. | Research reports, 10000 seedlings planted | Productivity (crop production), Economic (Input use efficiency, market participation), Social (social capital) | 4.5.2 (2), 4.5.2 (27), | 4.5.2 (2) = 20, 4.5.2 (27) = 3 | Draft paper for publication |  | Kongwo and Kiteto |
|  | Sub-activity 2.3: Conduct value chain analysis for Food safety, post harvest technologies and nutrition | 1-Dec-16 | 30-Sep-17 | C7, D9, E11 | A VCA for food products consumed within the zone of influence including Kongwa and Kiteto districts conducted. | Progress report and draft publication | Productivity (crop production), Economic (Input use efficiency, market participation), Social (social capital) | 4.5.2 (42) | 100 | Draft paper for publication | 1 | Kongwo and Kiteto |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| Activity 3: Develop a value chain enhancement strategy (including collective action approaches, contractual arrangements, and standardization). | | | | | | | | | | | | |
|  | Sub-activity 3.1: |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 3.2: |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 3.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 2:** Collective action models and alternative approaches linking farmers to markets developed and pilot tested. | | | | | | | | | | | | |
| Activity 1: Identify and evaluate existing mechanisms that inform farmers about dynamic market needs. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Explore ICTs for linking farmers to markets (input and output) | 1-Dec-16 | 30-Sep-17 | B5, E11 | One ICT option for linking farmers to markets tested | Project progress report | Economic (market participation, Input use efficiency, input use intensity), Social (social capital) | 4.5.2 (27), 4.5.2 (39) | 4.5.2 (27)=1000, 4.5.2 (39)= 1 | An ICT technology protocol; MoUs |  | Kongwo and Kiteto |
|  | Sub-activity 1.2: Explore ICTs for weather forecast information | 1-Dec-16 | 30-Sep-17 | B5, E11 | One ICT option for guiding farmers to farmer choices for planting tested | Project progress report | Economic (market participation, Input use efficiency, input use intensity), Social (social capital) | 4.5.2 (27), 4.5.2 (39) | 4.5.2 (27)=1000, 4.5.2 (39)= 1 | An ICT technology protocol; MoUs |  | Kongwo and Kiteto |
|  | Sub-activity 1.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| Activity 2: Conduct an analysis of the existing baseline survey data and supplement them with qualitative surveys from target regions. | | | | | | | | | | | | |
|  | Sub-activity 2.1: Refine typologies for informing design and scaling strategies | 1-Dec-16 | 30-Sep-17 | A2, B5 | Refine typologies for KK used test scaling designs of 3 SI Innovations in both districts involving about 500 farmers | Project progress report | Productivity (crop production), Economic (Input use efficiency, profitability, market participation), Social (labour, social capital) | 4.5.2 (2), 4.5.2 (39) | 4.5.2 (2)=5 ha, 4.5.2 (39)= 13 SI | Defined typology; technology protocols, training protocols |  | Kongwo and Kiteto |
|  | Sub-activity 2.2 |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 2.3: |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Outcome 5:** *Delivery and uptake of SI innovations through building functional partnerships among research and development institutions enhanced* | | | | | | | | | | | | |
| **Output 1:** Understanding of the social, economic, and institutional constraints to and opportunities for technology adoption from different farm typologies improved. | | | | | | | | | | | | |
| Activity 1: Conduct cost-benefit and gender analysis coupled with other socio-economic analyses to identify and quantify adoption constraints and opportunities for different farmer contexts. | | | | | | | | | | | | |
|  | Sub - activity 1.1: Conduct gender analysis of selected ISFM & crop system. | 1-Dec-16 | 30-Sep-17 | B4, C6, C7 | A study on gender analysis for ISFM and crop system conducted. | Research reports | Human (capacity to experiment) Social (gender equity) | 4.5.2 (42), 4.5.2 (28) | 60 persons | Draft paper for publication | 1 | Kongwo and Kiteto |
|  | Sub-activity 1.2: Conduct analysis on Influence of socio dynamics in poultry breeding. | 1-Dec-16 | 30-Sep-17 | B4, C6, C7 | A study on gender analysis for poultry enterprise in Kongwa and Kiteto conducted. | Research reports | Human (capacity to experiment), Social (gender equity) | 4.5.2 (42), 4.5.2 (28) | 60 persons | Draft paper for publication | 1 | Kongwo and Kiteto |
|  | Sub-activity 1.3: Conduct cost benefit analysis for selected SI technologies | 1-Dec-16 | 30-Sep-17 | B4, C6, C7 | Cost benefit analysis for two SI technologies conducted. | Research reports | Economic (profitability) |  |  | Draft paper for publication | 1 | Kongwo and Kiteto |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 2:** Improved mechanisms for effective linkages and strategic partnerships with public, private, and other initiatives for the release, diffusion, and adoption of validated technologies established. | | | | | | | | | | | | |
| Activity 1: Map and assess relevant stakeholders to establish dialogue for the exploration of mutual synergies for scaling delivery of validated technologies. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Map key stakeholders in Kiteto district for engagement | 1-Dec-16 | 30-Sep-17 | E11 | Stakeholder profile for Kongwa and Kiteto to inform scaling and R & D refined | Progress reports | Economic (market participation, income diversification). | 4.5.2 (42), 4.5.2 (28) | 2 study 10-15 enterprises | Report on 2 studyies based enterprises studied |  | Kongwo and Kiteto |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| Activity 2: Leverage/link and integrate (engagement and outreach) with existent initiatives including Government extension systems to support and encourage the delivery pathways. | | | | | | | | | | | | |
|  | Sub-activity 2.1: Strengthen IP for Kongwa and Kiteto | 1-Dec-16 | 30-Sep-17 | E11, E12 | At least two IP meetings held in each district one at community and another at district level. | progress report; meeting reports | Human (capacity to experiment) Social (gender equity) | 4.5.2 (42), 4.5.2 (28) | 80 participants | IP meetimg reports and resolutions |  | Kongwo and Kiteto |
|  | Sub-activity 2.2: Hold strategic meeting with district council for informed decision and scaling | 1-Dec-16 | 30-Sep-17 | E11, E12 | At least two strategic partner meetings (District council and government departments) one each for Kongwa and Kiteto . | progress report, meeting reports | Human (capacity to experiment) Social (gender equity) | 4.5.2 (42), 4.5.2 (28) | 80 participants | IP meetimg reports and resolutions |  | Kongwo and Kiteto |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 3:** Gender-sensitive decision support tools for farmers to assess technology-associated risk and opportunity developed tested and launched. | | | | | | | | | | | | |
| Activity 1: Identify and communicate gender-sensitive decision support technologies in the context of different farm typologies. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Promote gender sensitive decision support tools for R & D for scientist | 1-Dec-16 | 30-Sep-17 | A2 | Number of scientist utilizing gender decision suport tools for R & D. | progress report | Social (gender equity) | 4.5.2 (42), 4.5.2 (28), 4.5.2 (27) | 10 | Report, Success stories |  | Kongwo and Kiteto |
|  | Sub-activity 1.2: Promote gender sensitive decision support tools for farmers to guide adaption | 1-Dec-16 | 30-Sep-17 | B1 | Number of households utilizing gender decision suport tools for R & D. | progress report | Social (gender equity) | 4.5.2 (42), 4.5.2 (28), 4.5.2 (27) | 50 households | Report, Success stories |  | Kongwo and Kiteto |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 4:** A technology adoption, monitoring, and evaluation framework for use by the project team and scaling partners developed and released. | | | | | | | | | | | | |
| Activity 1: Monitor and modify the progress of technology adoption process towards scaling. | | | | | | | | | | | | |
|  | Sub-activity 1.1: Expose and promote use of M & E tools for scientist to track adoption. | 1-Dec-16 | 30-Sep-17 | C8 | Exposure reports for the KK team on M & E tools. | progress report | Human (capacity to experiment) Social (gender equity) |  |  | Meeting progress reports involving atleast 10 people |  | Kongwo and Kiteto |
|  | Sub-activity 1.2: Conduct BTTS annually in gender disaggregated manner. | 1-Dec-16 | 30-Sep-17 | C8 | M & E tools used (BTT, CKAN and other options by scientists) | progress report | Human (capacity to experiment) |  |  | Data uploaded by respective scientists every six monthly |  | Kongwo and Kiteto |
|  | Sub-activity 1.3:Collect records of scaling events conducted in gender disaggregated manner. | 1-Dec-16 | 30-Sep-17 | C8 | Data assembled on various SI scaling events | progress report | Human (capacity to experiment) |  |  | Data uassmbled on key SI inicators tested |  | Kongwo and Kiteto |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | **Sub Total** |  |  |  |  |  |  |  |  |  |  |  |
| **Output 5:** Knowledge sharing centers and learning alliances within existent local and regional institutions including development actors developed. | | | | | | | | | | | | |
| Activity 1: Establish knowledge-sharing and learning alliances among scaling actors. |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Sub-activity 1.1: Establish new innovation platforms (IP) across the development landscape. | 1-Dec-16 | 30-Sep-17 | E11, E12 | At least two IP meetings held in each district one at community and another at district level. | Meeting reports; research repots | Human (capacity to experiment) Social (gender equity) | 4.5.2 (42), 4.5.2 (28) | 80 participants | IP meeting reports and resolutions |  | Kongwo and Kiteto |
|  | Sub-activity 1.2: Establish strategic partnerships for knowledge dissemination and technology dissemination. | 1-Dec-16 | 30-Sep-17 | E11, E12 | At least two strategic partner meetings commplementary partners in NARS and civil society one each for Kongwa and Kiteto . | Meeting reports; reaserch repots | Human (capacity to experiment) Social (gender equity) | 4.5.2 (42), 4.5.2 (28) | 80 participants | Meeting & progress reports and resolutions |  | Kongwo and Kiteto |
|  | Sub-activity 1.3: Organize mobilization meetings and conduct training on GAP to support scaling operations in Kilosa. | 1-Dec-16 | 30-Sep-17 | E11, E12 | At least 5 training sessions and 10 mobilization meetings conducted in selected villages . | Training reports; research reports | Productivity (crop production) and Economic (Input use efficiency, profitability) | 4.5.2 (28), | 100 participants | Technology protocol; success stories | 1 | Kilosa |
|  | Sub-activity 1.4: Establish demonstartion plots in Kongwa, Kiteto, Kilosa on improved maize & legume (groundnuts, common beans and soyben) varieties | 1-Dec-16 | 30-Sep-17 | A2 | At least 2000 demos establhsied per district to demonstrate good agronomy practices and Integrated crop management . | Training reports; research reports | Productivity (crop production) and Economic (Input use efficiency, profitability) | 4.5.2 (2), 4.5.2 (5), 4.5.2 (7) | 4.5.2 (2)= 100 ha 4.5.2 (5) = 20 4.5.2 (7)= 3 | Technology protocol; success stories |  | Kongwa, Kilosa and Kiteto |
|  | Sub-activity 1.5: Community empowerment on improved maize & legumes varieties, GAP and soil and water conservation technologies | 1-Dec-16 | 30-Sep-17 | E11, E12 | At least 2000 farmers per district participating in demos trained on good agronomy practices and Integrated crop management . | Training reports; research reports | Human (Capacity to experiment), Social (social capital) | 4.5.2 (7) | 2000 people per district (3 district) | Report on farmers trained |  | Kongwa, Kilosa and Kiteto |